IN THE UNITED STATES DISTRICT COURT FOR THE WESTERN DISTRICT OF TEXAS AUSTIN DIVISION

CARBYNE BIOMETRICS, LLC,

Plaintiff, Civil Action No. 1:23-cv-00324

v.

APPLE INC., JURY TRIAL

Defendant.

CARBYNE BIOMETRICS' RESPONSE TO APPLE'S MOTION FOR SUMMARY

JUDGMENT THAT THE ASSERTED CLAIMS

OF U.S. PATENT NOS. 9,972,010; 10,713,656; AND 11,526,886

ARE INVALID UNDER 35 U.S.C. § 112

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TABLE OF ABBREVIATIONS

Term	Definition
Apple	Defendant Apple Inc.
Carbyne	Plaintiff Carbyne Biometrics, LLC
'010 Patent	U.S. Patent No. 9,972,010
'656 Patent	U.S. Patent No. 10,713,656
'886 Patent	U.S. Patent No. 11,526,886
Fraud Reduction Patents or Asserted Patents	The '010, '656, and '886 Patents
Fraud Reduction Claims or Asserted Claims	Claims 1, 6, and 9 of the '010 Patent;
	claims 1 and 8 of the '656 Patent, and
	claims 1, 12 and 14 of the '886 Patent
Motion or Mot.	Apple's Motion for Summary Judgment that
	the Asserted Claims of U.S. Patent Nos.
	9,972,010; 10,713,656; and 11,526,886 are
	Invalid Under 35 U.S.C. § 112

I. INTRODUCTION

Case 1:23-cv-00324-ADA

Apple moves for summary judgment of invalidity by arguing that the Fraud Reduction Patents lack a sufficient written description sufficient to support the full scope of the claim limitation "determining" that a "user is alive" and that this limitation is not enabled by the specification. Apple's burden here is high, not only because it must present clear and convincing evidence to invalidate the asserted claims, but also because whether the written description and enablement requirements are met is a quintessential question of fact. Apple has not met its burden of showing that the Fraud Reduction Patents fail either requirement.

First, for the written description requirement, Apple's arguments view the claims too broadly, ignoring disclosures of biometric techniques in the specification based on mischaracterizations of the prosecution history. The common specification for the Fraud Reduction Patents describes the inventions in sufficient detail such that a person of ordinary skill in the art would understand that the inventor possessed the full scope of the inventions at the time of filing. The Asserted Claims recite performing an aliveness determination based on captured biometric information for a user in a processor-based system. The specification provides examples of biometric information that can be used for this determination including taking multiple photographs in rapid succession, analyzing audio output, GPS, and fingerprinting. A POSITA reading the specification in light of his or her knowledge would have understood that these examples provide a representative sampling of biometric authentication techniques to conclude that the inventor possessed the full scope of the claimed inventions. Carbyne's expert highlights these factors in his report, which creates a genuine issue of material fact and bars summary judgment.

Second, with respect to the enablement requirement, Apple rehashes many of the arguments it raised when challenging the written description, and they fail for the same reasons. In addition, Apple's contention that Carbyne's expert admitted that a POSITA would not know how to add an aliveness check to a fingerprint sensor or how to integrate numerous types of biometric sensors relies on out-of-context deposition quotes in which Carbyne's expert was explaining why it would not have been obvious to modify certain prior art references. Apple's argument is also belied by the enablement analysis Carbyne's expert provided in his rebuttal report, which is sufficient to establish a genuine issue of material fact as to whether the "aliveness determination" is enabled.

II. LEGAL STANDARDS

A. Summary Judgment

Summary judgment is appropriate only when the moving party demonstrates that there is no "genuine issue of material fact" and the undisputed facts warrant judgment for the moving party as a matter of law. F.R.C.P. 56(c); *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248 (1986). All evidence must be viewed in the light most favorable to the non-movant, Carbyne, and all reasonable inferences must be drawn in its favor. *Matsushita Elec. Indus Co., Ltd. v. Zenith Radio Corp.*, 475 U.S. 574, 587 (1986).

B. Written description

35 U.S.C. § 112 requires that a patent specification include an adequate written description. The test for whether the written description is satisfied is whether the specification "conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date." *Streck, Inc. v. Research & Diagnostic Sys., Inc.*, 665 F.3d 1269, 1285 (Fed. Cir. 2012). "There is no rigid requirement that the disclosure contain either examples or an actual reduction

to practice; the proper inquiry is whether the patentee has provided an adequate description that in a definite way identifies the claimed invention in sufficient detail such that a person of ordinary skill would understand that the inventor had made the invention at the time of filing." *Allergan, Inc. v. Sandoz Inc.*, 796 F.3d 1293, 1308 (Fed. Cir. 2015). "That assessment requires an objective inquiry into the four corners of the specification, as the hallmark of written description is disclosure." *Id.* "The level of detail required to satisfy the written description requirement depends, in large part, on the nature of the claims and the complexity of the technology." *Streck*, 665 F.3d at 1285. Compliance with the written description requirement is a "question of fact." *Falko-Gunter Falkner v. Inglis*, 448 F.3d 1357, 1363 (Fed. Cir. 2006). As an invalidity defense, Apple must prove the lack of adequate written description by clear and convincing evidence. *Allergan, Inc. v. Sandoz Inc.*, 796 F.3d 1293, 1309 (Fed. Cir. 2015).

C. Enablement

Section 112's enablement requirement asks whether "the specification teach[es] those in the art to make and use the invention without undue experimentation." *In re Wands*, 858 F.2d 731, 737 (Fed. Cir. 1988). To satisfy this requirement, "[t]he specification must contain sufficient disclosure to enable an ordinarily skilled artisan to make and use the entire scope of the claimed invention at the time of filing." *MagSil Corp. v. Hitachi Glob. Storage Techs., Inc.*, 687 F.3d 1377, 1381 (Fed. Cir. 2012). "Enablement is a question of law based on underlying factual findings." *Id.* "To prove that a claim is invalid for lack of enablement, a challenger must show by clear and convincing evidence that a person of ordinary skill in the art would not be able to practice the claimed invention without 'undue experimentation." *Alcon Research Ltd. v. Barr Labs., Inc.*, 745 F.3d 1180, 1188 (Fed. Cir. 2014).

III. FACTUAL BACKGROUND

The Fraud Reduction Patents claim improved systems and methods for reducing fraud in electronic transactions. See Dkt. 194-1 ('010 Patent) at abstract, 1:22-1:28.1 The claimed solution provides a customized user interface in conjunction with fraud detection analysis that consists of capturing and analyzing a user's biometric information to determine that the user is alive. See cl.1 of the '010, '656, and '886 Patents. The electronic transaction is completed or allowed to proceed based on the fraud detection analysis and the user's interaction with a transaction icon in the user interface. Id. The claims of the '886 Patent also include the additional requirement that capturing of the biometric information "comprises capturing, using a camera, a set of images." See Dkt. 194-3 ('886 Patent) at cl.1. These images are then analyzed as part of the fraud detection analysis. *Id.*

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The Fraud Reduction Patents' common specification provides examples of techniques and rules that can be applied for determining whether a user is alive. See 194-1 at 8:47-8:67. For example, for the transaction interface, a purchaser may be "given a choice of either providing an audio sample [] or providing a photograph" to complete the transactions. *Id.* at 8:47-8:51. The specification states that in some embodiments an analysis may be performed as part of the transaction, and "[t]echniques for confirming that the object being photographed is alive (e.g., by taking multiple photographs in rapid succession) can be employed to help make sure the fraudster isn't using camera 112 to photograph a printed picture of the legitimate user." *Id.* at 8:54-8:60.

The specification also states that the "application of various rules" may be implemented, "such as requiring that a face be detected in the captured image or that a certain amount of flesh

¹ The Fraud Reduction Patents share a common specification. For convenience, citations to the specification will be to the '010 Patent (Dkt. 194-1).

tone be present in the picture can also be implemented." *Id.* at 8:60-8:63. The specification further teaches: "Similar rules can be applied to other types of capture, such as requiring that a GPS be turned on prior to a transaction taking place, or requiring that provided audio conform to general rules that define what human utterances sound like." *Id.* at 8:63-8:67. The specification also discloses another embodiment of the claimed interface that includes a built-in fingerprint scanner where the captured "biometric information may be partial (e.g., the size or shape of a fingerprint) or more complete (e.g., a fingerprint)." *Id.* at 6:39-6:45.

In this case, Carbyne has accused Apple's iPhones, iPads (implementing Face ID), and Vision Pro (Optic ID) of infringing the Fraud Reduction Claims. *See* Dkt. 192-5 through 192-12. The Face ID module performs the claimed aliveness determination when authenticating an Apple Cash transaction by capturing images of a user using an IR camera and dot projector and running sets of algorithms to detect the presence of a face, to ensure the user's eyes are open and directed to the device, to compare the captured images with the stored biometric templates for an account holder, and running an anti-spoof algorithm to ensure the user is a living human and not a printed photograph or mask of the legitimate user. *See* Dkt. 192-11 at 32, 43; Dkt. 192-12 at 60-65. Optic ID practices the claimed aliveness determination in much the same way. *See* Dkt. 192-11 at 48-51; Dkt. 192-12 at 66-69. The system's gaze tracking detects that the user's eye is directed to a certain point and cameras in each monocle take photos of the user's irises and runs matching algorithms and anti-spoofing algorithms to determine the user's iris data is that of a live human eye and not a photograph or contact lens designed to spoof the system. *Id.*

IV. ARGUMENT

A. The Fraud Reduction Patents Satisfy § 112's Written Description Requirement for Determining a User Is Alive Based in Part on Biometric Information.

The written description requirement "does not require disclosure of every claimed embodiment." *Janssen Pharm., Inc. v. Tolmar, Inc.*, 718 F. Supp. 3d 394, 432 (D. Del. 2024), Rather, the written description requirement is satisfied "if the specification provides a sufficient number of representative embodiments to show that the inventor possessed the full scope of the claim, or for the described embodiments to have shared features, from which a person of skill in the art could infer possession of the entire claim scope." *Id.*; *see also Idenix Pharms. LLC v. Gilead Scis., Inc.*, 941 F.3d 1149, 1164 (Fed. Cir. 2019); *Ariad*, 598 F.3d at 1350; *Allergan, Inc. v. Sandoz, Inc.*, 796 F.3d 1293, 1308 (Fed. Cir. 2015) ("[T]he proper inquiry is whether the patentee has provided an adequate description that in a definite way identifies the claimed invention in sufficient detail that a person of ordinary skill would understand that the inventor had made the invention at the time of filing."); *Lipocine Inc. v. Clarus Therapeutics, Inc.*, 541 F. Supp. 3d 435, 457 (D. Del. 2021) (providing written description support for every embodiment "would be impossible in many instances, such as for a claim to a pharmaceutical product that is defined by features spanning a numerical range of dose amounts [or] dosing frequency").

The Fraud Reduction Patents meet this threshold requirement. The Fraud Reduction claims are directed to reducing fraud in electronic transactions. As Apple concedes, the Fraud Reduction claims are limited to a "processor-based system." Mot. 5-6. The claims also require a graphical user interface, and all the described embodiments are limited to personal electronic devices. *See, e.g.*, Dkt. 194-1 at Fig 1. Given these factors, the claims of the '010 and '656 Patents do not encompass "the *entire universe* of possible techniques for determining whether a user is alive" as

Apple suggests. Mot. 1. The Fraud Reduction Patents' written description must be understood against this backdrop. *Streck*, 665 F.3d at 1285 ("The level of detail required to satisfy the written description requirement depends, in large part, on the nature of the claims.").

Placing the aliveness determination in the context of a processor-based system implemented through a personal electronic device, the Fraud Reduction Patents disclose a "representative number of species falling within the genus." D Three Enters., LLC v. SunModo Corp., 890 F.3d 1042, 1047 (Fed. Cir. 2018); Janssen Pharm., Inc., 718 F. Supp. 3d at 432. The specification discloses taking multiple photographs in rapid succession to determine that a user is alive and not a printed photograph. Dkt. 194-1 at 8:54-8:60. After this example, the specification states other rules can be applied here, such as detecting in a face a "certain amount of flesh tone." Id. at 8:61-8:62. In the same paragraph, the specification states that "similar rules can be applied to other types of capture," and provides the examples of GPS and voice data. *Id.* at 8:63-8:64. Given the initial discussion of the aliveness determination at the beginning of this paragraph, "capture" logically refers to the capture of "biometric information" for the claimed "fraud detection analysis" and "similar rules" can only be understood as referring back to biometric inputs for the "aliveness" determination as this is the central focus of the entire paragraph. The specification also discloses the fingerprints as another example of "biometric information." Id. at 6:39-6:45.

These techniques (multiple photographs, GPS, and fingerprint scanner disclosed in the specification cover almost all of those) Apple's expert, Dr. Dunstone, identified ("fingerprints, facial features, finger geometry, iris features, vein features, retina features, voice, handwriting, pulse, DNA") as those known in the prior art for which a POSITA would have understood how to

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use to determine a user is alive. *Compare* Dkt. 194-1 at 6:39-6:45, 8:47-8:67 *with* Ex. 1 (Dunstone Opening Rep.) ¶ 926. And as Carbyne's expert, Dr. Cole, explains in his rebuttal report, a POSITA would have known how to employ the mediums disclosed in the specification to determine whether a user is alive. *See* Ex. 2 (Cole Validity Rebuttal Rep.) ¶¶ 674-84.

Apple's arguments for why the Fraud Reduction Patents fail the written description requirement rely on selective reading of the specification and mischaracterization of the prosecution history and Dr. Cole's deposition testimony. Apple's claim that the specification discloses only one way to determine aliveness (photographs taken in rapid succession) ignores the other sections of the specification just discussed.

Apple's reliance on the '886 Patent's prosecution history is also misplaced. Apple cites a non-final rejection in which the examiner stated that "the specification teaches only that 'taking multiple photographs in rapid succession' is used for confirming that the object being photographed is alive." Dkt. 194-4 at 4-5. As Apple tells it, the Applicant accepted the "examiner's finding" by not disputing it, amending the claims to limit the aliveness determination to "using one or more photographs," *Id.* at 9, and not seeking a reexam of the '010 and '656 Patents. This is revisionist history. Carbyne did not adopt the examiner's statement regarding the specification. Nor did the examiner as evidenced by the variety of '886 Patent's dependent claims that were approved that claim the captured biometric information used for the aliveness determination consists of other examples from the specification beyond capture of multiple photographs. *See, e.g.*, '886 Patent cl.15 (system recited in claim 1, wherein the set of captured biometric information further comprises an audio sample); cl.21 (method of claim 6, wherein the set of captured biometric information further comprises an audio sample). What's more, Apple apparently did not put much

stock in the examiner's statement since it chose not to pursue a narrower construction for the aliveness determination for the '010 and '656 Patents based on prosecution history estoppel. *See* Dkt. 42 (Apple's Opening Claim Construction Brief).

Apple's citation to Dr. Cole's deposition testimony is unavailing. The cited testimony is cherry picked from lengthy questioning about whether it would have been obvious for a POSITA to combine or modify the prior art to reach the claimed inventions. See, e.g., Mot. 7 (citing Cole Dep. Tr., Vol. 2 (Ex. 3) at 395:20-397:11 (explaining it "would not have been obvious for a POSITA to add additional layers of security" to a peer-to-peer cash application) and 407:21-408:20 (explaining in obviousness context the technological hurdles to adding biometric authentication to prior art references)). Dr. Cole explained in detail in his report that a POSITA reading the specification would have understood how to perform the aliveness determination through the various mediums disclosed therein and that the inventor possessed the full scope of the claimed invention. Dr. Dunstone's analysis of the prior art also supports this conclusion. See Ex. 1, ¶¶ 91-96, 128-32; see generally ¶ 261-924. So at a minimum the conflicting testimony of the parties' experts creates a genuine issue of material fact as to whether the written description requirement is satisfied. See Crown Packaging Tech., Inc. v. Ball Metal Beverage Container Corp., 635 F.3d 1373 (Fed. Cir. 2011) (finding summary judgment inappropriate where parties' experts offered conflicting opinions).

Since the written description requirement is satisfied for the aliveness determination claimed by the '010 and '656 Patents, it follows that the requirement is also satisfied by the narrower claims of '886 Patent. The '886 Patent's claims recite "capturing a set of biometric information, wherein capturing the set of biometric information comprises capturing, using a

camera, a set of images." *See* Dkt. 194-3 at cl.1. The set of images is then analyzed to determine whether the user is alive. This is almost verbatim what is disclosed in the specification ("taking multiple photographs in rapid succession" to determine the object being photographed is alive). As Dr. Cole explains, a POSITA would understand that "detecting slight differences in the face, based on movement, across multiple photographs taken in rapid succession is a way to determine the subject is alive." Ex. 2, ¶ 682. This is sufficient to show the inventor possessed the full scope of what is claimed.

B. The Claims of the Fraud Reduction Patents Are Enabled According to § 112.

The Fraud Reduction Patents enable the full scope of the claimed aliveness determination. A POSITA reading the claims in light of the specification would be able to make and use the full scope of the invention without undue experimentation. As explained in the discussion of the written description, the specification discloses several different biometric mediums that a POSITA would have known how to collect and analyze to determine a user is alive. *See* Ex. 2, ¶¶ 274-84.

Apple argues that the claims are not enabled for the same reasons it contends the written description requirement is not satisfied: The specification discloses only one method for determining aliveness ("taking multiple photos in rapid succession") and does not cover the myriad of other biometric authentication techniques that exist. This is wrong. The specification discloses several biometric mediums and as Dr. Cole explains a POSITA would have known how to analyze these to determine whether a user is alive. *See* Ex. 2, ¶¶ 274-84. At a minimum, Dr. Cole's testimony that a POSITA would understand how to make and use the claimed invention without undue experimentation creates a genuine issue of material fact that precludes summary judgment for Apple. *See B-K Lighting, Inc. v. Fresno Valves & Castings, Inc.*, 375 F. App'x 28 (Fed. Cir. 2010) (finding conflicting expert testimony created a genuine issue of material fact).

V. CONCLUSION

For the foregoing reasons, the Court should deny Apple's motion for summary judgment based on lack of written description and lack of enablement.

Dated: November 13, 2024 McKOOL SMITH, P.C.

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CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the above and foregoing document has been served on all counsel of record via the Court's ECF system and electronic email on November 13, 2024.

/s/ Joshua W. Budwin Joshua W. Budwin